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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,968	06/27/2001	Herman Dietrich Dierks JR.	AUS920010389US1	3810

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EXAMINER	
CHEA, PHILIP J	
ART UNIT	**PAPER NUMBER**
2153	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ML

Office Action Summary	Application No.	Applicant(s)	
	09/892,968	DIERKS ET AL.	
	Examiner	Art Unit	
	Philip J Chea	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-39 have been examined.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2,4-10,14,16-24,26,28-36,39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 2 recites the limitation "the socket structure" in line 2. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 4 recites the limitation "the socket structure" in line 5. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 14 recites the limitation "the socket structure" in line 2. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 16 recites the limitation "the socket structure" in line 5. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 26 recites the limitation "the socket structure" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 28 recites the limitation "the socket structure" in line 6. There is insufficient antecedent basis for this limitation in the claim.

All other claims not mentioned specifically have been rejected by virtue of being dependent on a rejected claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1,2,13,14,25,26,37,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hausman et al. (herein referred to as Hausman), and further in view of Hall ("Beej's Guide to Network Programming").

As per claims 1,13, and 25, although the system disclosed by Hausman shows a system for performing a bulk read from a receive buffer, comprising:

- initiating a bulk read function having a bulk read size (see columns 6 and 7, lines 63-67 and 1-13, where a bulk read is considered the DMA read once the threshold is met);
- determining if an amount of data in the receive buffer is equal to or greater than the bulk read size (see columns 6 and 7, lines 63-67 and 1-13, where receive buffer is considered the RX FIFO); and
- activating the bulk read function only when there is an amount of data in the socket receive buffer equal to or greater than the bulk read size (see columns 6 and 7, lines 63-67 and 1-13, where the DMA process is begun when the threshold in RX FIFO has been met),

it fails to disclose a socket.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Hausman, as evidenced by Hall.

Hall discloses that sockets are well known in the art for doing any sort of I/O in a Unix environment. Further disclosing using sockets for a network connection, a FIFO, a pipe, a terminal, etc. (see section 2. What is a socket?, paragraph 2).

Given the teaching of Hall, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Hausman by employing the use of sockets for communication, such as disclosed by Hall, in order to allow for two-way communication in different environments.

As per claims 2,14,26, Hausman in view of Hall further disclose that it would have been obvious to store the bulk read size in the socket structure (see Hall, section 3. structs and Data Handling, where Hall shows that programmers modified a generic socket structure and created a new structure with new fields to adapt to the additional parts of an Internet address. Therefore, allowing a convenient package to reference elements of the new socket. A person would having ordinary skill in the art would have noticed the advantages of storing the bulk read size or other necessary parameters in the socket structure to allow for easy reference to the size or parameter in one instantiation instead of having multiple variables for different socket sessions and connections).

As per claims 37,38, Hausman in view of Hall further discloses placing the bulk read function in an inactive state if an amount of data in the socket receive buffer is not equal to or greater than the bulk read size (see Hausman Fig. 5 [520], where if threshold is not met, a DMA is not performed).

11. Claims 3,15,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hausman in view of Hall as applied to claims 1,13,25 above, and further in view of Baugher et al. (US 5,819,043).

Although the system disclosed by Hausman in view of Hall shows substantial features of the claimed invention (discussed above), it fails to disclose that the bulk read size is a size identified by a user.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Hausman in view of Hall, as evidenced by Baugher et al.

Baugher et al. disclose that it would have been obvious to allow a user to adjust performance levels by identifying a parameter (see column 3, lines 11-16).

Given the teaching of Baugher et al., a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Hausman in view of Hall by employing user

identified parameters, such as disclosed by Baugher et al., in order to allow a human being, who is the most adaptable control means yet devised to adjust values to optimize performance (see Baugher et al. column 3, lines 11-16).

12. Claims 4-6,16-18,28-30,39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hausman in view of Hall as applied to claims 1,13,25 above, and further in view of Spilo (US 6,182,165).

As per claims 4,16,28, although the system disclosed by Hausman in view of Hall shows activating the bulk read function only when there is an amount of data in the socket receive buffer equal to or greater than the bulk read size is performed (see Hausman columns 6 and 7, lines 63-67 and 1-13, where the threshold initiates a DMA process which is considered the bulk read function), it fails to disclose executing the above mentioned function in response to setting of a flag in the socket structure.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Hausman in view of Hall, as evidenced by Spilo.

In an analogous art, Spilo discloses a DMA memory access that is useful in communications that employ packetized data, such as network communications, further performing the DMA access in response to the setting of a flag (see column 7, lines 19-61).

Given the teaching of Spilo, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Hausman in view of Hall by setting a flag to allow a DMA access, such as disclosed by Spilo, in order to distinguish ownership of a buffer between the DMA controller and the software.

Further, the teaching of Hall, as discussed above, shows that it would have been obvious to store the flag in the socket structure.

As per claims 5,17,29, Hausman in view of Hall in view of Spilo further disclose checking a state of the flag in the socket structure (see discussion above of claim 4); and

determining if an amount of data stored in the socket receive buffer is less than the bulk read size, if the flag is set (see discussion above of claim 4).

As per claims 6,18,30, Hausman in view of Hall in view of Spilo further disclose that if the amount of data stored in the socket receive buffer is less than the bulk read size, the bulk read function is not activated (see Hausman Fig. 5 [520], where if threshold is not met, a DMA is not performed).

As per claim 39, Hausman in view of Hall in view of Spilo further disclose placing the bulk read function in an inactive state if an amount of data in the socket receive buffer is not equal to or greater than the bulk read size (see Hausman Fig. 5 [520], where if threshold is not met, a DMA is not performed).

13. Claims 7-10,19-24,31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hausman in view of Hall in view of Spilo as applied to claims 1,6,16,18,29,30 above, and further in view of Lindsay (US 6,564,267).

As per claims 7,19,31, although the system disclosed by Hausman in view of Hall in view Spilo shows checking the state of the flag and determining if an amount of data in the socket receive buffer is less than the bulk read size (see above), it fails to disclose receiving a Transport Control Protocol (TCP) segment from a sending device.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Hausman in view of Hall in view of Spilo, as evidenced by Lindsay.

In an analogous art, Lindsay discloses a TCP network adapter with the ability to read in large blocks of data (see column 4, lines 6-33) further disclosing receiving a TCP segment from a sending device (see column 10, lines 33-64).

Given the teaching of Lindsay, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Hausman in view of Hall in view of Spilo by employing the efficiency of sending large blocks of data, such as disclosed by Lindsay, in order to have greater efficiency than sending multiple small blocks by requiring fewer calls down through the software protocol stack (see Lindsay columns 1 and 2, lines 63-67 and 1-8).

As per claims 8,20,32, Hausman in view of Hall in view of Spilo in view of Lindsay further disclose an acknowledgement sent to the sending device for every alternate TCP segment received (see Lindsay

column 7, lines 31-62, where an ACK is sent after every two packets to reduce the packet processing overhead).

As per claims 9,21,33, using the same motivation to combine as claims 7,19,31, Hausman in view of Hall in view of Spilo in view of Lindsay further disclose checking a state of the flag, determining if an amount of data stored in the socket receive buffer is less than the bulk read size, and activating the bulk read function (see above). Lindsay further suggests performing bulk data transfers in a TCP layer (see column 10, lines 33-64).

As per claims 10,22,34 Hausman in view of Hall in view of Spilo in view of Lindsay further disclose informing a sending device that a full window size of data is available in the socket receive buffer (see Lindsay column 10, lines 55-67, where data stored in the buffer after sending is considered sending the last portion of possibly smaller data until all the data is transmitted), if the flag is set and the amount of data stored in the socket receive buffer is less than the bulk read size (see Hausman).

As per claims 23,35, using the same motivation to combine as claims 7,19,31, Hausman in view of Hall in view of Spilo in view of Lindsay further disclose copying an amount of data equal to the bulk read size from the socket receive buffer to an application buffer (see Lindsay columns 10 and 11, lines 33-67 and 1-4, where sending full sized packets to buffer memory until the all the data is sent is considered amount of data equal to bulk read size); and resetting the flag (see Spilo column 7, lines 19-61).

As per claims 24,36, Hausman in view of Hall in view of Spilo in view of Lindsay further disclose determining if there is data stored in a socket buffer after copying the amount of data equal to the bulk read size from the socket receive buffer to the application buffer; and sending a window update to a sending device if there is data stored in the socket receive buffer after the copying (see Lindsay column 10, lines 55-67, where data stored in the buffer after sending is considered sending the last portion of possibly smaller data until all the data is transmitted).

14. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hausman in view of Hall as applied to claim 1 above, and further in view of Lindsay (US 6,564,267).

As per claims 11, using the same motivation to combine as claims 7,19,31, Hausman in view of Hall in view of Lindsay further disclose copying an amount of data equal to the bulk read size from the socket receive buffer to an application buffer (see columns 10 and 11, lines 33-67 and 1-4, where sending full sized packets to buffer memory until the all the data is sent is considered amount of data equal to bulk read size); and resetting the flag (see Spilo column 7, lines 19-61).

As per claims 12, Hausman in view of Hall in view of Lindsay further disclose determining if there is data stored in a socket buffer after copying the amount of data equal to the bulk read size from the socket receive buffer to the application buffer; and sending a window update to a sending device if there is data stored in the socket receive buffer after the copying (see Lindsay column 10, lines 55-67, where data stored in the buffer after sending is considered sending the last portion of possibly smaller data until all the data is transmitted).

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bournas; Redha Mohammed	US 5751970 A
Hausman; Richard et al.	US 5872920 A
Muller; Shimon et al.	US 6453360 B1
King-Smith; Bernard A. et al.	US 6829662 B2

Matsuo, Takahiro. "Scalable Automatic Buffer Tuning to Provide High Performance and Fair Service for TCP Connections". 1999. <http://citeseer.ist.psu.edu/article/matsuo99scalable.html>.

Hasegawa, Go. "Scalable Socket Buffer Tuning for High-Performance Web Servers". 2000 <http://citeseer.ist.psu.edu/article/hasegawa00scalable.html>.

Allman, Mark. "On Estimating End-to-End Network Path Properties". 1999. <http://citeseer.ist.psu.edu/allman99estimating.html>.

Dunigan, Tom. "TCP auto-tuning zoo". 5/12/04. 3/1/05 <http://www.csm.ornl.gov/~dunigan/netperf/auto.html>.

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